**WHAT IS CLAIMED IS:**

1. Light coupling element with a surface (3) of a material which is transparent to light of a given wavelength ($\lambda$), wherein in at least one region of the surface (3) are present equidistantly parallel line-form indentations ($5_1$), characterized in that on the surface (3) further equidistantly parallel line-form indentations ($5_2$) are present which intersect ($\varphi$) the first.

2. Light coupling element with a surface (3) of a material which is transparent to light of a given wavelength ($\lambda$), wherein in at least one region of the surface (3) equidistantly parallel line-form elevations ($7_1$) are present, characterized in that on the surface (3) further equidistantly parallel line-form elevations ($7_2$) are present which intersect ($\varphi$) the first.

3. Light coupling element as claimed in one of claims 1 or 2, characterized in that between elevations ($7$, $7_1$, $7_2$) provided thereon defined indentations ($5_1$, $5_2$, $5$) are developed with three depth levels ($d_{T1}$, $d_{T2}$, $d_{T1} + d_{T2}$).

4. Light coupling element as claimed in one of claims 1 or 2, characterized in that indentations ($5$, $5_1$, $5_2$) disposed between the provided elevations ($7$, $7_1$, $7_2$) are substantially of equal depth.

5. Light coupling element as claimed in one of claims 1 to 4, characterized in that the provided line-form indentations ($5_1$, $5_2$) or elevations ($7_1$, $7_2$) are linear.

6. Light coupling element as claimed in one of claims 1 to 5, characterized in that the equidistantly parallel, line-form indentations ($5_1$, $5_2$) or elevations ($7_1$, $7_2$) intersect at right angles and the distances ($d_0$) of the present successive

equidistantly parallel line-form indentations ($5_1$, $5_2$) or elevations ($7_1$, $7_2$) are equal.

7. Light coupling element as claimed in one of claims 1 to 6, characterized in that the distances ($d_0$) of successive equidistantly parallel line-form indentations ($5_1$, $5_2$) or equidistantly parallel line-form elevations ($7_1$, $7_2$) are selected as follows:

$$200 \text{ nm} \leq d_0 \leq 20000 \text{ nm},$$

preferably

$$40 \text{ nm} \leq d_0 \leq 4000 \text{ nm},$$

in particular

$$100 \text{ nm} \leq d_0 \leq 1200 \text{ nm}.$$

8. Light coupling element as claimed in one of claims 1 to 7, characterized in that the distances ($d_0$) of successive equidistantly parallel line-form indentations ($5_1$, $5_2$ or equidistantly parallel line-form elevations ($7_1$, $7_2$) relative to the given wavelength $\lambda$ in air are selected as follows:

$$0.1\ \lambda \leq d_0 \leq 10\ \lambda$$

preferably:

$$0.2\ \lambda \leq d_0 \leq 2\ \lambda$$

especially preferred:

$$0.5\ \lambda \leq d_0 \leq 0.6\ \lambda.$$

9. Light coupling element as claimed in one of claims 1 to 8, characterized in that the depth $d_T$ of the provided indentations is 0.2 nm to 20000 nm, preferably 10 nm to 400 nm.

10. Light coupling element as claimed in one of claims 1 to 9, characterized in that the depth $d_T$ of the provided indentations relative to the given wavelength $\lambda$ in air is selected as follows:

$$0.001\ \lambda \leq d_T \leq 10\ \lambda$$

preferably:

$$0.01\ \lambda \leq d_T \leq \lambda$$

especially preferred:

$$0.05\ \lambda \leq d_T \leq 0.2\ \lambda.$$

11. Light coupling element as claimed in one of claims 1 to 10, characterized in that the duty cycle, defined as the ratio of elevation width to the distance of successive line-form indentations or elevations, is selected to be 0.2 to 0.8, in particular preferably to be 0.4 to 0.6.

12. Light coupling element as claimed in one of claims 1 to 11, characterized in that the surface (3) is the surface of a layer system (1a) with at least one layer, which is applied onto a support (15).

13. Light coupling element as claimed in claim 12, characterized in that the surface of the support (15) in the region has the same indentation/elevation structure as the surface of the layer system (1a) and that, in top view, the structures are aligned one on another.

14. Light coupling element as claimed in one of claims 12 or 13, characterized in that the material of the support (15) has a refractive index for the light of the given wavelength ($\lambda$) which is lower than the refractive index of a layer material of the layer system.

15. Light coupling element as claimed in one of claims 12 to 14, characterized in that the layer system has at least one layer of a high-refractive material, preferably of at least one of the following materials:
$Ta_2O_5$, $TaO_2$, $NbO_5$, $ZrO_2$, ZnO, $HfO_2$.

16. Light coupling element as claimed in one of claims 12 to 15, characterized in that the layer system has a thickness $d_S$ of

2 nm to 20000 nm,

preferably of

20 nm to 4000 nm,

in particular of

40 nm to 600 nm,

preferably

$d_S$ = 150 nm.

17. Light coupling element as claimed in one of claims 12 to 16, characterized in that the layer system, relative to the given wavelength $\lambda$ in air, has a thickness $d_S$ for which, relative to the given wavelength $\lambda$, in air applies:

$$0.01\ \lambda \leq d_S \leq 10\ \lambda$$

preferably:

$$0.01\ \lambda \leq d_S \leq 2\ \lambda$$

especially preferred:

$$0.2\ \lambda \leq d_S \leq 0.3\ \lambda.$$

18. Light coupling element as claimed in one of claims 1 to 17, characterized in that the elevations (7) remaining between the equidistantly parallel line-form indentations ($5_1$, $5_2$) or the indentations (5) remaining between the equidistantly parallel line-form elevations ($7_1$, $7_2$) in top view are rhomboid-form, rhombus-form, rectangular or square.

19. Light coupling element as claimed in one of claims 2 or 3 to 16, in so far as they are dependent on claim 2, characterized in that the indentation (5) present between the parallel line-form elevations ($7_1$, $7_2$) in top view are circular or elliptic.

20. Use of the light coupling element as claimed in one of claims 1 to 19 on an optical analysis platform for substance analyses.

21. Use of the light coupling element as claimed in one of claims 1 to 19 for

telecommunication data transmission.

22. Method for realizing polarization independence by means of which a light coupling element with a surface grating acts onto incident light of given wavelength, characterized in that the surface grating is developed two-dimensionally on the surface such that orthogonal polarization vector components are influenced equally by the grating.

23. Method for reducing the drop size on a light coupling element with surface grating, characterized in that by providing a surface grating extending in two dimensions the drop size developing thereon is reduced.